

# TAN WEI ZHEN

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## Skills

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- C/C++, C#, Java, Python(Pandas, Scikit-learn)
- SQL
- OpenGL, FMOD,
- Visual Studio, Visual Studio Code
- Android Studio, Kotlin, Jetpack Compose
- Unity
  - Photon PUN 2/Fusion, Azure Playfab, Firebase, XR Interaction Toolkit
- MySQL, Microsoft SQL Server
- Microsoft Internet Information Services(IIS)
- Ubuntu

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## Education

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**DigiPen Singapore & Singapore Institute of Technology** Aug 2022 - May 2027  
Bachelor of Science in Computer Science in Real-Time Interactive Simulation

**Nanyang Polytechnic** Apr 2019 - Mar 2022  
Diploma in Game Development & Technology

- MSC Maritime Digital Challenge Kanda Challenge Statement Champion (2021)
  - Developed VR prototype for Oculus Quest 2 using Unity Engine

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## Work Experience

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**Unity Developer** Oct 2024 - Feb 2025  
Turbo Jatt

- Metaverse app, Unity3D Mutiplayer Mobile project using Photon Fusion
- SMS verification using Twilio
- Send/Retrieve data from Tencent Cloud Object Storage

**Game Development Internship** Mar 2022 - Jun 2022  
YOOZOO Games

- Indoor navigation app, Unity3D Mobile AR project using ARFoundation
- Worked on chatbot prototype using gRPC

**3D Intern** Nov 2021 - Feb 2022  
RoyceMedia Technologies

- Digital Twin to monitor building equipment, Unity3D WebGL project
- Equipment viewer, Android AR prototype using ARFoundation
- Made a simple multiplayer game prototype to learn how to use MQTT messages
- Create/Update REST API calls with ASP.NET core to send/retrieve data from database
- Send and Retrieve data using MQTT

**Robotics Trainer** May 2019 - Jan 2020  
School of Robotics

- Plan and prepare teaching materials
- Train and engage students with STEM Robotics & Coding enrichment courses
- Guide students to develop problem-solving and computational skills

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# Projects

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## 3D Custom Game Engine and Tools | Team of 12

Sep 2025 - Ongoing

### Editor

- C++, OpenGL Windows Application able to support making a 3D physics-based action adventure game.
- Asset Browser with Filewatcher, Assets Pipeline with multi-threading to speed up asset compile times, and helped with game programming.

### Engine

- Static library
- Designed the core engine architecture with EnTT(and Reflection (entt::meta)), did the Animation System and Materials Pipeline, and Resource Manager with lazy loading.

### Resources Tool

- Command-line Application.
- Compile assets such as textures, fonts, 3D models etc using compresonator, freetype, assimp into resources for the engine.

## Customer Database Android App

Sep 2025

- Made with Unity for Android platform with Firebase for real-time database updates
- Designed an interface for tracking customer details and visit history.

## 3D Graphics Engine

Jul 2025 - Aug 2025

- C++, OpenGL project with Dear ImGui, Eigen library
- 3D model loading using assimp, primitives intersection tests, Bounding Volume construction(AABB,spheres,OBB), Bounding Volume Hierarchy, View Frustum Culling, Octree, Kd-tree
- Built from scratch for Spatial Data Structures module.

## 2D Custom Game Engine and Tools | Team of 8

Aug 2023 - Apr 2024

- C++, OpenGL Windows Application able to support making a 2D physics-based platformer game
- Implemented a custom Entity-Component System based on a Sparse-set data structure for high-performance component data locality
- Integrated FMOD to support spatial audio and complex sound event handling.
- Gameplay programming

## VR Multiplayer Training Simulation | Team of 5

Aug 2021 - Nov 2021

- A virtual reality, real-time multiplayer, account-based, personalised training system(serious gaming)
- Made using Unity Engine for Oculus Quest 2 with Photon PUN2 and Playfab